This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (currently amended) A method for determining the validity of a sensor signal of a sensor including the steps of:

providing a sensor signal from a sensor;

providing an estimated sensor signal of the sensor;

determining the difference between the sensor signal and the estimated sensor signal;

calculating a standard deviation of the difference;

scaling the points of inflection of a fuzzy logic membership function proportional to the standard deviation; and

processing the sensor signal using the fuzzy logic membership function to determine whether the sensor signal is valid or not.

Claim 2. (original) The method of Claim 1, wherein the step of processing occurs before the step of scaling.

Claim 3. (original) The method of Claim 1, wherein the step of scaling occurs before the step of processing.

Claim 4. (original) The method of Claim 1, wherein the fuzzy logic membership function has at least two domains, including at least one domain that evaluates a sensor signal as acceptable, and at least one domain that evaluates a sensor signal as unacceptable.

Claim 5. (original) The method of Claim 4, wherein the step of scaling includes the step of multiplying a plurality of points of inflection of the fuzzy logic membership function by the standard deviation.

Claim 6. (currently amended) A method for determining the quality of a sensor signal of a sensor in a fuzzy logic controller including the steps of:

providing a first cumulative scatter value indicative of a cumulative degree of difference between a plurality of sensor signal values of the sensor and estimated sensor signal values of the sensor corresponding to each of the sensor signal values;

providing a fuzzy logic membership function in which the x-axis values of the points of inflection of a plurality of fuzzy logic domains are derived from the first cumulative scatter value;

retrieving a further sensor signal value of the sensor;

comparing the further sensor signal value with a further estimated sensor signal value of the sensor;

calculating a further scatter value indicative of the individual degree of difference between the further sensor signal value and the further estimated sensor signal value;

combining the further scatter value with the first cumulative scatter value to provide a second cumulative scatter value indicative of the cumulative degree of difference and the individual degree of difference in combination; and

amending the fuzzy logic membership function such that the x-axis values of the points of inflection of the plurality of fuzzy logic domains are derived from the second cumulative scatter value.

Claim 7. (original) The method of Claim 6, wherein the step of providing a first cumulative value includes the steps of:

a. calculating a first difference between a first of the plurality of sensor signal values and a first of the estimated sensor signal values;

b. calculating a second difference between a second of the plurality of sensor signal values and a second of the estimated sensor signal values; and

c. calculating the first cumulative scatter value from at least the foregoing first and second differences.

Claim 8. (original) The method of Claim 7, wherein the first cumulative scatter value is a function of the standard deviation of the first and second differences.

Claim 9. (currently amended) A method of individually determining whether a plurality of sequential sensor values of a sensor are valid comprising the steps of:

a. reading a sensor value of the sensor;

b. determining a degree of difference between the sensor value and an estimated sensor value of the sensor;

c. revising the x-axis values of a fuzzy logic membership function that responds to the degree of difference as an input and produces a signal indicative of the validity of the sensor value as an output;

d. determining whether the sensor value is valid; and

e. repeating steps a through d for each of the plurality of sequential sensor values.

Claim 10. (original) The method of Claim 9, further comprising the steps of: calculating a value indicative of the collective degree of scatter of the individual degree of differences calculated in step c.

Claim 11. (original) The method of Claim 10, wherein the step of calculating is performed after each step of determining a degree of difference, and wherein the value indicative of the collective degree of scatter incorporates all of the previous individual degrees of difference.

Claim 12. (original) The method of Claim 11, wherein the value indicative of the collective degree of scatter is a standard deviation of prior degrees of difference calculated in step b.

Claim 13. (original) The method of Claim 12, wherein x-axis values of the membership function are themselves functions of the standard deviation.

Claim 14. (original) The method of Claim 13, further comprising the step of calculating a plurality of the x-axis values every time the step of calculating a value indicative of the degree of scatter occurs.

Claim 15. (currently amended) The method of Claim 14, wherein each of the x-axis values of the points of inflection ~~are~~ is associated with a value that is a function of the collective degree of scatter.